

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A biodegradable copolymer suitable for delivering a nucleic acid molecule to a cell, the copolymer comprising ~~low molecular weight~~ polyethylenimine ~~cross-linked by~~ linked to a cyclodextrin, wherein the polyethylenimine is a linear polymer having a molecular weight of less than 10,000 Daltons, and wherein the cyclodextrin is modified at no more than two positions by an activating agent to allow attachment to no more than two polyethyleneimine molecules.

2. (Original) The biodegradable copolymer according to claim 1 having a net positive charge and being capable of complexing with negatively charged nucleic acid molecules.

3-4. (Canceled)

5. (Currently amended) The biodegradable copolymer according to ~~claim 4~~ claim 1, wherein the polyethylenimine has a molecular weight of less than about 20000, ~~preferably less than about 15000, more preferably less than about 10000, even more preferably less than about~~ 5000 Daltons.

6. (Currently amended) The biodegradable copolymer according to ~~claim 4~~ claim 1, wherein the polyethylenimine has a molecular weight of less than about 2000 Daltons.

7. (Currently amended) The biodegradable copolymer according to claim 6 wherein the polyethylenimine has a molecular weight from about 600 to 2000 Daltons.

8. (Currently amended) The biodegradable copolymer according to claim 1 wherein the cyclodextrin is β -cyclodextrin ~~modified or activated by an agent to allow attachment to~~ polyethylenimine.

9. (Original) The biodegradable copolymer according to claim 8 wherein the agent is selected from the group consisting of β -1,1'-carbonyldiimidazole, benzotriazole carbonate, N,N'-disuccinimidyl carbonate, chloroformates, N-hydroxysuccinimidyl chloroformate, and carbonylimidazole.

10. (Original) The biodegradable copolymer according to claim 9 wherein the agent is β -1,1'-carbonyldiimidazole.

11. (Previously presented) The biodegradable copolymer according to claim 1 wherein the polyethylenimine is cross-linked to cyclodextrin via a carbonyl group.

12. (Original) The biodegradable copolymer according to claim 11 having ester bonding.

13. (Previously presented) The biodegradable copolymer according to claim 1 wherein the copolymer contains up to about 35 polyethylenimine units.

14. (Original) The biodegradable copolymer according to claim 13 wherein the copolymer contains between about 5 and 25 polyethylenimine units.

15. (Original) The biodegradable copolymer according to claim 14 wherein the copolymer contains about 10 to 15 polyethylenimine units.

16. (Currently amended) A method for synthesizing a biodegradable copolymer comprising the steps of:

(a) ~~treating reacting~~ cyclodextrin with an agent ~~to form a modified or activated to bond with~~ cyclodextrin at no more than two positions on the cyclodextrin to form an activated cyclodextrin; and

(b) ~~adding reacting~~ the ~~modified or~~ activated cyclodextrin ~~to~~ with a low-molecular weight linear polyethylenimine having a molecular weight of less than 10,000 Daltons to form a

~~mixture and treating the mixture under suitable conditions to form~~ a biodegradable copolymer comprising polyethylenimine linked ~~by~~ to cyclodextrin wherein no more than two polyethyleneimine molecules are attached to each cyclodextrin.

17. (Original) The method according to claim 16 wherein the cyclodextrin is β -cyclodextrin.

18. (Original) The method according to claim 17 wherein the agent is selected from the group consisting of β -1,1'-carbonyldiimidazole, benzotriazole carbonate, N,N'-disuccinimidyl carbonate, chloroformates, N-hydroxysuccinimidyl chloroformate, and carbonylimidazole.

19. (Original) The method according to claim 16 wherein the agent is β -1,1'-carbonyldiimidazole.

20. (Canceled)

21. (Currently amended) The method according to ~~claim 20~~ claim 16, wherein the polyethylenimine has a molecular weight of less than about 20000, ~~preferably less than about 15000, more preferably less than about 10000, even more preferably less than about 5000~~ Daltons.

22. (Currently amended) The method according to ~~claim 20~~ claim 16, wherein the polyethylenimine has a molecular weight of less than about 2000 Daltons.

23. (Currently amended) The method according to claim 22 wherein the polyethylenimine has a molecular weight from about 600 to 2000 Daltons.

24. (Previously presented) The method according to claim 16 wherein the polyethylenimine is cross-linked to cyclodextrin by a carbonyl group.

25. (Original) The method according to claim 24 wherein the copolymer contains ester bonding.

26. (Previously presented) The method according to claim 16 wherein the copolymer contains up to about 35 polyethylenimine units.

27. (Original) The method according to claim 26 wherein the copolymer contains between about 5 and 25 polyethylenimine units.

28. (Original) The method according to claim 27 wherein the copolymer contains about 10 to 15 polyethylenimine units.

29. (Previously presented) A biodegradable copolymer synthesized by the method according to claim 16.

30. (Withdrawn) A method for delivering a nucleic acid molecule to a cell, the method comprising forming a complex between a biodegradable copolymer according to claim 1 and a nucleic acid molecule and exposing the cell to the copolymer/nucleic acid molecule complex such that the complex is internalized by the cell and the nucleic acid molecule is released in the cell.

31. (Withdrawn) The method according to claim 30 wherein the cell is in an animal.

32. (Withdrawn) The method according to claim 31 wherein the animal is a human.

33. (Withdrawn) A method for delivering a nucleic acid molecule to a cell, the method comprising forming a complex between a biodegradable copolymer according to claim 29 and a nucleic acid molecule and exposing the cell to the copolymer/nucleic acid molecule complex

such that the complex is internalized by the cell and the nucleic acid molecule is released in the cell.

34. (Withdrawn) The method according to claim 33 wherein the cell is in an animal.

35. (Withdrawn) The method according to claim 34 wherein the animal is a human.

36. – 39. (Canceled)